

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION**

ERICSSON INC., et al.,

Plaintiffs,

vs.

D-LINK CORPORATION, et al.,

Defendants.

Civil Action No. 6:10-cv-473

JURY TRIAL DEMANDED

ERICSSON'S OPENING CLAIM CONSTRUCTION BRIEF

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Plaintiffs Ericsson Inc. (“Ericsson US”) and Telefonaktiebolaget LM Ericsson (“LM Ericsson”) (collectively, “Ericsson”) respectfully submit their opening claim construction brief. The first section of the brief introduces the inventions of the patents-in-suit. The second section addresses applicable claim construction principles, including the well-established prohibition against reading limitations from the specification into the claims. The last section of this brief explains why Ericsson’s proposed constructions for the disputed claim terms are consistent with the established principles of claim construction and should be adopted by the Court.

I. BRIEF TECHNOLOGY OVERVIEW

There are nine patents at issue in this lawsuit: U.S. Patent Nos. 6,772,215 (“the ‘215 Patent”), 6,519,223 (“the ‘223 Patent”), 6,424,625 (“the ‘625 Patent”), 6,330,435 (“the ‘435 Patent”), 5,790,516 (“the ‘516 Patent”), 5,987,019 (“the ‘019 Patent”), 6,466,568 (“the ‘568 Patent”), 5,771,468 (“the ‘468 Patent”), and 6,173,352 (“the ‘352 Patent”).¹ The patents are attached in Exhibits 1–9. The parties have disputed claim terms for only six of these patents.

Ericsson has long been a pioneer in developing cellular and wireless communication technologies. It has developed much of the technology that underlies wireless communications systems, including systems that comply with the Institute of Electrical and Electronics Engineers’ (“IEEE”) 802.11 standards. The patents-in-suit are concerned with wireless networking, and their claimed inventions are implemented in many 802.11-compliant products. Specifically, the patents-in-suit solve practical problems that arise when trying to maximize the efficiency of wireless data transmission.

In an ideal setting, data may be efficiently transmitted using radio signals with few errors. In the real world, wireless communication systems must account for signal interference, moving

¹ The parties agree that no constructions are necessary for the ‘223 patent, ‘625 patent, or ‘352 patent, except for the one agreed construction below.

senders and receivers, obstructions, and signal decay over distances. The patents-in-suit solve several of these real world problems.

As a practical matter, there is no way to completely avoid errors when sending data wirelessly. When a wireless device sends a signal across a room to another device, that signal can bounce off of walls and objects which may delay the signal or prevent the receiver from receiving the signal at all. As a result, the receiver will receive data that is either out of order or incomplete. When these sorts of errors occur, the '215 patent provides methods for senders and receivers to efficiently correct those errors by communicating about the missing data. The '435 patent also addresses error correction mechanisms, but it recognizes that the need for error correction must be balanced with the need for fast transmission of data. For example, for streaming video and telephone conversations, users may prefer to tolerate minor errors or otherwise limit the amount of transmission delay introduced trying fix the errors. The '019 and '568 patents allow senders and receivers to tailor error correction, bandwidth needs, and other requirements to specific types of services.

The '516 patent differs from the above-described patents by focusing more on the physical process of preparing radio signals for transmission. This patent describes “pulse-shaping waveforms,” which can be used to minimize interference with a radio signal. Finally, the '468 patent describes apparatuses that can take advantage of more advanced radiocommunication techniques without requiring wholly new hardware. A more thorough description of each of these patents is provided below.

II. PRINCIPLES OF CLAIM CONSTRUCTION

Ericsson proposes constructions of the claims of the patents-in-suit in accordance with long-established principles of claim construction—giving a claim term its ordinary meaning that one of skill in the art, at the time of the invention and in light of the patent’s specification and

prosecution history, would have given it, except in two unusual circumstances: (1) where the intrinsic record provides a special definition for the term; or (2) where the patentee disclaims a portion of the term's ordinary meaning. *See, e.g., Phillips v. AWH Corp.*, 415 F.3d 1303, 1316–17 (Fed. Cir. 2005). “[A]lthough the specification often describes very specific embodiments of the invention, [the Federal Circuit has] repeatedly warned against confining the claims to those embodiments.” *Id.* at 1323 (citing *Nazomi Communications, Inc. v. ARM Holdings, PLC*, 403 F.3d 1364, 1369 (Fed. Cir. 2005)). Limitations from the specification should not be read into the claims unless the patentee “acted as his own lexicographer and imbued the claim terms with a particular meaning or disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction.” *E-Pass Techs., Inc. v. 3COM Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003) (citations omitted).

Defendants seek to construe the claims in ways which have no basis in these principles of construction. Because the Court is familiar with the law of claim construction, Ericsson will discuss specific claim construction principles only where applicable to each dispute.

III. AGREED CLAIM CONSTRUCTIONS

The parties have agreed to the following claim construction for the '223 patent:

Claim Term	Agreed Construction
means for transmitting a 'move receiving window' request when said discard timer expires and said acknowledgement message for each said at least one protocol data unit has not been received	<p>The claim term is a means-plus-function limitation under 35 U.S.C. § 112, ¶ 6.</p> <p>Recited Function: transmitting a 'move receiving window' request when said discard timer expires and said acknowledgement message for each said at least one protocol data unit has not been received</p> <p>Corresponding Structure: the transmitter, as described in 3:65-67 and illustrated in Fig. 2 and equivalents thereof</p>

IV. DISPUTED CLAIM CONSTRUCTIONS

A. U.S. Patent No. 6,772,215

When data is transferred between different nodes of a wireless network, portions of the data, *e.g.*, packets of data, may become corrupted or may not be received by the intended recipient. This may occur for a variety of reasons such as interference with other signals, because one of the nodes temporarily moved out of range, or because an obstruction blocked transmission of some packets. In order to alleviate this problem, network components can transmit error control feedback responses to request re-transmission of the lost data portions.

The '215 patent describes multiple methods of encoding feedback responses to accurately describe which portions have been lost. For example, a receiver could transmit a list indicating that it did not receive packets 2-6 and 12-14. Alternatively, the receiver could transmit a complete map of the sent packets using a 1 to indicate received packets and a 0 to indicate missing packets, *i.e.* a “bitmap.” The most appropriate method for encoding a feedback response may vary in practice (*e.g.*, based on the number and order of lost data packets). The method patented in the '215 patent allows for efficient switching between multiple encoding methods in a manner that can be understood by both senders and receivers in a network.

1. *“responsive to the receiving step, constructing a message field . . . including a type identifier field”*

Claims	Ericsson's Proposed Construction	Defendants' Proposed Construction
1, 15, 25	responsive to the receiving step, generating a message field including a field that identifies the message type of the feedback response message from a number of different message types	responsive to the receiving step, generating a message field including a field identifying the type of feedback response that is <u>selected</u> from multiple available feedback responses <u>in order to minimize the size or number of feedback responses</u>

The parties' proposed constructions are nearly identical. The Defendants' proposed construction, however, includes superfluous language and should be rejected. The first

superfluous language in the Defendants’ proposed construction is that it requires the type of feedback response to be actively “selected from multiple available feedback responses.” This would import an entirely additional method step—namely, the step of selecting—into the claim. Plainly, this would violate the canons of claims construction.

The next superfluous language in the Defendants’ proposed construction is the addition of a requirement that the (unclaimed) “selecting” further accomplish the goal of “minimiz[ing] the size or number of feedback responses.” While minimizing the size or number of feedback responses may be the benefit of the invention, “not every benefit flowing from an invention is a claim limitation.” *See i4i, Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 843 (Fed. Cir. 2010). Here, the claims do not recite that the form of the feedback responses be selected to minimize the size or number of feedback responses. As such, the Defendants’ proposed construction, which contains superfluous language and adds unclaimed limitations, should be rejected.

2. “means for sending a plurality of first data units over said communication link to said second peer entity”

Claims	Ericsson’s Proposed Construction	Defendants’ Proposed Construction
45	<p>Recited Function: sending a plurality of first data units over said communication link to said second peer entity.</p> <p>Corresponding Structure: the sender of a peer entity or equivalents thereof.</p>	<p>Recited function: the transmission of first data units by a first peer unit to a second peer unit</p> <p>Corresponding Structure: <i>Invalid</i></p>

“In construing a means-plus-function claim, the district court must first determine the claimed function and then identify the corresponding structure in the written description of the patent that performs that function.” *See Baran v. Med. Techs., Inc.*, 616 F.3d 1309, 1316 (Fed. Cir. 2010) (citing *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1332 (Fed. Cir. 2006)). Ericsson’s proposed recited function for this term is the function explicitly recited

in the claim. This is what 35 U.S.C. § 112 ¶ 6 requires. *See Micro Chem., Inc. v. Great Plains Chemical Co., Inc.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999) (“The statute [35 U.S.C. § 112 ¶ 6] does not permit limitation of a means-plus-function claim by adopting a function different from that explicitly recited in the claim.”). The Defendants’ proposed recited function for this term, in contrast, is a different function and is therefore legally defective.

Likewise, the Defendants’ contention that this term is indefinite is without merit. The ’215 patent is presumed to be valid, and the Defendants bear the burden of proving that an ordinary artisan would not understand the bounds of the claim from the disclosed structure. Namely, the ’215 patent discloses that “[i]n most communication systems, user data information is conveyed in both directions between the peer entities.” ’215 patent at 2:8–9. Further, the ’215 patent discloses that the sender of a peer entity performs the function of sending a plurality of first data units over said communication link to said second peer entity. *Id.* at 1:26–30. (“The existing ARQ protocols (i.e., algorithms) include two peer entities that communicate with each other over transmission links. Each such entity includes a receiver and a sender.”). In sum, Ericsson’s construction, which pairs the recited function with the corresponding structure disclosed in the specification, should be adopted. Conversely, the Defendants’ construction, which misidentifies the recited function and ignores disclosed structure, should be rejected.

3. “means for receiving said plurality of first data units, and constructing . . .”

Claims	Ericsson’s Proposed Construction	Defendants’ Proposed Construction
45	<p>Recited Function:</p> <p>receiving said plurality of first data units, and constructing one to several message fields for a second data unit, said one to several message fields including a type identifier field and at least one of a sequence number field, a length field, a content field, a plurality of erroneous sequence number fields, and a plurality of erroneous sequence number length fields, each of said plurality of erroneous sequence number fields associated with a respective one of said plurality of erroneous sequence number length fields</p> <p>Corresponding Structure:</p> <p>the receiver of a peer entity, see ’215::29-30, whereby different mechanisms can be used to indicate erroneous data units so as to optimize performance, see ’215::5:53-56, and the mechanisms refer to any of the methods described for constructing a bitmap feedback response message disclosed at ’215::3:17-28 and ’215::6:8-48, any of the methods for constructing a compressed bitmap feedback response message disclosed at ’215::6:49-54, any of the methods for constructing a list feedback response message disclosed at ’215::2:63-3:16 and ’215::7:28-51, and/or the method for constructing a feedback response message combining the list and bitmap methods, and any equivalents thereof.</p>	<p>Recited function:</p> <p>receiving the plurality of first data units and generating a message field including a field identifying the type of feedback response that is selected from multiple available feedback responses in order to minimize the size or number of feedback responses.</p> <p>Corresponding Structure:</p> <p>(a) FIG. 4, FIG. 5, FIG. 6, Table 1, 3:6-13, 36-42, 4:1-54, 5:50-6:49, 6:55-64, 7:28-51</p> <p>(b) Invalid under 35 U.S.C. § 112, ¶¶ 2, 6</p>

Ericsson’s proposed recited function for this term is the function explicitly recited in the claim. This is what 35 U.S.C. § 112 ¶ 6 requires. *See Micro Chem.*, 194 F.3d 1250 at 1258. In its proposed corresponding structure for this term, Ericsson has identified the structure in the ’215 patent that “actually performs” the recited function. *See Default Proof Credit Card Sys. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005). Namely, Ericsson’s proposed

corresponding structure of this term identifies the receiver of the peer entity, disclosed at columns 29–30 as receiving data units and constructing a feedback to indicate erroneous data units according to the various algorithms disclosed for constructing a bitmap feedback response message ('215 patent at 3:17–28 and 6:8–48), the algorithms for constructing a compressed bitmap feedback response message (*Id.* at 6:49–54), the algorithms for constructing a list feedback response message (*Id.* at 2:63–3:16 and 7:28–51), and/or the method for constructing a feedback response message combining the list and bitmap methods.

The Defendants' proposed recited function for this term is a different function and is therefore legally defective. Likewise, the Defendants are imprecise in their identification of the corresponding structure. First, it is unclear whether the Defendants' proposed corresponding structures are alternatives to each other or whether the Defendants are contending that all structure in their proposed construction is necessary structure. Second, the Defendants' proposed corresponding structure incorrectly identifies structure. Namely, the Defendants identify Figs. 4-6 and Table 1 as corresponding structure for this term. But Figs. 4-6 and Table 1 are not the structure that carries out the recited function; rather, these are representative of the messages that are *created* as a result of the recited function. Similarly, most of the Defendants' citations to the narrative portions of the specification, namely citations to the '215 patent at 3:6–13, 36–42, 4:1–54, and 6:55–64, describe aspects of created response messages. In this way, the Defendants have missed the mark by not identifying the structure that actually performs the recited function, and their proposed construction should be rejected.

B. U.S. Patent No. 6,330,435

As explained above, the '215 patent allows senders and receivers to efficiently determine which data packets have been received, and which data packets must be re-sent. Unfortunately, this process of sending and re-sending data may cause unacceptable delays for some

applications, *e.g.*, applications that occur in real time such as telephone conversations and streaming video. The '435 patent describes a system (including a transmitter and receiver) that recognizes these real-time communications become obsolete rather quickly as compared to email, static webpages, or other static information. The transmitter splits a set of information into chunks called data packets and sends them to the receiver. In addition, the transmitter holds a specified number of data packets in a buffer until they are acknowledged by the receiver. Similarly, the receiver holds incomplete sets of data packets in a buffer until the complete set is correctly received.

From time to time, the receiver may not receive one or more packets in a set and will request that the transmitter re-transmit them. After a few retries, if the receiver still has not correctly received one or more of the data packets, they become obsolete. However, the receiver continues to wait on these packets and the transmitter continues to store them in the buffer because the receiver has not yet acknowledged receipt of them. This will eventually create a deadlock where the buffers of both the transmitter and receiver are full and cannot move on to the next set of data packets. The '435 Patent solves this problem by allowing the transmitter to send a discard notification message to the receiver. The discard message tells the receiver that the transmitter has deleted the obsolete data packets. Upon receipt the receiver determines which packets have been discarded at the transmitter and likewise removes those data packets from a list of ones still expected from the transmitter. This message then allows both the transmitter and receiver to move to the next set of data packets without continuing to wait on the transmission of obsolete data packets.

1. “data packet discard notification message from the transmitter to the receiver indicating data packets the transmitter has discarded”

Claims	Ericsson’s Proposed Construction	Defendants’ Proposed Construction
1	a control message in an Automatic Repeat Request protocol that indicates data packets that the transmitter has discarded	message containing the identity of unacknowledged data packets the transmitter has discarded

The dispute between the parties here focuses on whether the discard message must actually contain the explicit identity of the discarded (or to be discarded) packets. Ericsson asserts that it does not, while Defendants believe that it does.

a) Ericsson’s Construction is Supported by the Claim Language.

The claim language itself demonstrates that the discard message need not explicitly identify the individual discarded packets. First, the claim requires the transmission of the discard message to the receiver and, upon receipt, the receiver will “comput[e] which data packets have been discarded.” ’435 patent at claim 1. This phrase indicates that the message is flexible and does not mandate the explicit identification of each packet to be discarded—otherwise there would be no need to “compute” which ones have been discarded.

Second, the dependent claims confirm this interpretation. Dependent claim 6 specifically requires that “the data packet discard notification message include[] a sequence number field for each data packet to be discarded by the receiver.” ’435 Patent at claim 6. Under the doctrine of claim differentiation, the discard message of claim 1 should be understood to include the broader concept of a message that does not directly indicate the discarded packets. In another example, dependent claim 3 requires that the discard message include (1) a sequence number to indicate a first data packet to be discarded and (2) a length field to indicate “a number of data packets immediately preceding the first data packet, that are to be discarded by the receiver.” ’435 Patent at claim 3. The use of a length field in this context shows that the message itself does not

explicitly indicate each packet to be discarded. Rather, the message need only contain enough information for the receiver to derive (in its “computing” step) which packets should be discarded. Ericsson’s construction should therefore be adopted, as it maintains the flexibility contemplated by the claim language.

b) Defendants’ Construction Excludes a Preferred Embodiment.

The specification describes numerous preferred embodiments, several of which do not require the discard message to contain the explicit identity of each discarded packet. In fact, the description specifically states that “as an alternative, a CDN message can explicitly contain the sequence number for each discarded cell. For example, the CDN message can include a sequence number field for each discarded cell.” ’435 Patent at 3:45–48 (emphasis added). In other words, other alternative embodiments do not require an explicit identification of each discarded cell.

Moreover, like the dependent claims noted above, the specification describes an exemplary discard message that does not require the explicit identity of discarded packets (or cells). This example discard message includes a sequence number field and a length field. “The sequence number field 204 contains a first sequence number SSN1 which identifies a particular cell to be discarded. The length field contains a length L1, which indicates how many cells immediately subsequent to the SSN1 cell should also be discarded.” *Id.* at 2:48–53. Notably, the very first example states that the discard message includes only two sequence numbers (16 and 128); however, the message “indicates that the transmitter has discarded cells 16-25 and 128-141.” *Id.* at 2:63–65. The inventors understood that it would be inefficient to list each discarded packet “where a large number of cells in a sequence are discarded.” *Id.* at 2:65–3:3. This embodiment would be precluded by Defendants’ construction as it requires the explicit identity of each packet to be discarded.

In another embodiment, the specification illustrates that a bitmap may be used as the discard message. The bitmap may “hav[e] a predetermined length . . . and begin[] with the cell bearing sequence number SSN1.” *Id.* at 3:36–44. In this case, the bitmap does not necessarily begin by identifying a discarded packet. Instead, the message simply flags which subsequent packets (after the first packet SSN1) should be discarded by using a “0” or a “1.” *Id.* at 3:20–23. Defendants’ construction would prevent the claims from covering this embodiment as well. As this Court is well aware, “[a] claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.” *See Globetrotter Software, Inc. v. Elan Computer Group, Inc.*, 362 F.3d 1367, 1381 (Fed. Cir. 2004). The Court should therefore reject Defendants’ construction.

c) The Prosecution History Does Not Support Defendants’ Construction.

The prosecution history consists of a single office action and response unrelated to the issues confronted by the parties’ constructions. The Examiner mistakenly believed that a “cell”—a term not contained in the issued claims—referred to a geographic location of a base station. The Applicants simply pointed out that, in the context of the patent application and claims, a cell is a data packet and not a geographic location. “Applicants respectfully note that the ‘cells’ formerly recited in the claims refer to data packets or messages, and do not refer to geographical areas serviced by base stations in a wireless communication system.” Ex. 10, May 17, 2001 Office Action Response at pg. 10. These arguments are unrelated to the present dispute and, as a result, the prosecution history does not support limiting the claims as Defendants suggest.

C. U.S. Patent Nos. 5,987,019 and 6,466,568

The '019 and '568 patents² disclose methods and apparatuses for efficiently transmitting different types of data. These patents grew out of Ericsson's work on the North American Time Division Multiple Access (NA-TDMA) standards. Specifically, the inventors were considering which stream of data would and should take priority on a video call, the audio or the video. Although two streams of data could be separately sent, there was no way for the receiver to determine which payload was being carried by which data packet. Without knowing what the payload was, the receiver could not prioritize the data streams. The inventors discovered that if they included a service type identifier field with the transmitted data, the system could prioritize certain kinds of services over others.

The '019 and '568 patents are not limited to merely providing priority information. As radio communication systems advance and evolve, new types of information are exchanged with different transmission characteristics. Rather than attempting to predict all of these changes, the '019 and '568 patents propose the use of a service type identifier which describes the transmission characteristics of a data payload and which can be easily changed to accommodate a variety of different services. For example, when a user attempts to transmit voice information and fax information at the same time, the user may tolerate different levels of error protection for those two different types of services. To account for those differences, each packet of information will contain a service type identifier which informs the receiver to use voice-error protection of fax-error protection for that packet.

² The '568 patent, which contains apparatus claims, is a division of the '019 patent, which contains method claims. Both patents contain the same specification and similar claim language. For ease of reading, this section will focus on the earlier issued '019 patent, but the arguments apply identically to asserted claim 1 of the '568 patent.

1. “separate from said first field”

Claims	Ericsson’s Proposed Construction	Defendants’ Proposed Construction
’019: 19 ’568: 1	<i>No construction is necessary.</i>	in a different portion of a radio channel from said first field

Claim 19 of the ’019 patent covers a method for transmitting information on a radio channel with three steps:

1. providing at least one first field in which payload information is disposed;
2. providing at least one second field, separate from said first field, which includes a service type identifier which identifies a type of payload information provided in said at least one first field; and
3. transmitting said at least one first field and said at least one second field on said radio channel.

The first limitation requires a field with “payload information.” The second limitation requires a field for a “service type identifier.” The phrase “separate from said first field” clarifies that the claim requires two distinct fields, i.e., the field with payload information is not the same field as the service type identifier field. Because this limitation is not subject to specification disclaimer or prosecution history disclaimer, there is no need to construe this straightforward limitation.

Defendants contend that the phrase “separate from said first field,” is in need of construction. However, Defendants’ proposal actually only construes the word “separate.” Because the inventors never offered a unique definition for this common English word, Defendants’ proposal is nothing more than an attempt to inject an extraneous limitation into the claim. Specifically, Defendants seek to inject limitations from exemplary TDMA embodiments of the invention into a claim that is not limited to TDMA applications.

While working on the ’019 invention, the inventors were involved in developing the TDMA standards for cell phones. Unsurprisingly, the patent specification describes several exemplary embodiments tied to TDMA. *See generally* 4:10-4:18. However, the inventors

explicitly recognized that the invention would have applications for future radiocommunication systems and standards. *See* '019 patent at 4:11-4:13 (“The following description is scripted in terms of a cellular radiotelephone system, but it will be understood that Applicant’s invention is not limited to that environment.”).

In a TDMA system, a radio channel can be divided into various time slots, with each time slot able to carry information. Thus, a user could use each time slot to carry a single field of information. However, the inventors claimed this embodiment of the '019 patent in claim 1, which requires that the second field be in “at least another one of successive time slots.” Asserted claim 19 is not drafted so narrowly. Notably, none of the limitations of claim 19 require the two fields to be in separate time slots or separate portions of a radio channel.

2. “a service type identifier which identifies a type of payload information”

Claims	Ericsson’s Proposed Construction	Defendants’ Proposed Construction
'019: 19 '568: 1	an identifier which identifies transmission characteristics of payload information	an identifier that identifies the type of information (e.g., video, voice or data) conveyed in the payload

The '019 and '568 patents make it clear that the inventions were designed for use in systems where multiple types of payloads may be transmitted. Ericsson’s proposal recognizes that the inventors anticipated many more types of payload information than the few examples discussed in the patent. Defendants’ proposal effectively seeks to limit the asserted claims to only covering systems that use the exemplary service types described in the patent specification.

As explained above, many of the examples discussed in the '019 patent relate to the TDMA environment. However, the claims of the '019 patent are not all limited to that environment. For example, while the patent provides various examples of transmitting cell phone voice information, it also recognizes that “video or hybrid voice, data, and video to

support internet connections, will likely be supported in the future.” *See* ’019 patent at 2:24-2:26.

Instead of attempting to predict all of the various types of information that may be used in future radio communications, the ’019 patent provides a framework that can flexibly account for future developments, each of which may be suited to different transmission characteristics in a given wireless communications environment. *See* ’019 patent at 2:56-2:60. Specifically, the ’019 patent provides for a “service type identifier” which can be used to identify a variety of different “services,” i.e., “various types of information communication” that “will likely have different optimal transmission characteristics.” ’019 patent at 2:27-2:29. The ’019 patent describes various examples of services such as voice, video, fax, and internet data. ’019 patent at 2:27-2:55. Each of these services may require different amounts of bandwidth, error protection, and delay tolerance depending on the needs of the system and the user. *See id.* The ’019 patent contemplates that a service type identifier may be used to indicate the transmission characteristics for a particular service. For example, a service type identifier used for internet data may inform a device that more bandwidth should be allocated in the downlink direction instead of the uplink direction. *See* ’019 patent at 2:30-2:42. As another example, a service type identifier for fax data may be used to signal the appropriate amount of error protection. *See* ’019 patent at 2:44-2:50. Ericsson’s proposal captures the purpose of the service type identifier—identifying transmission characteristics of payload information.

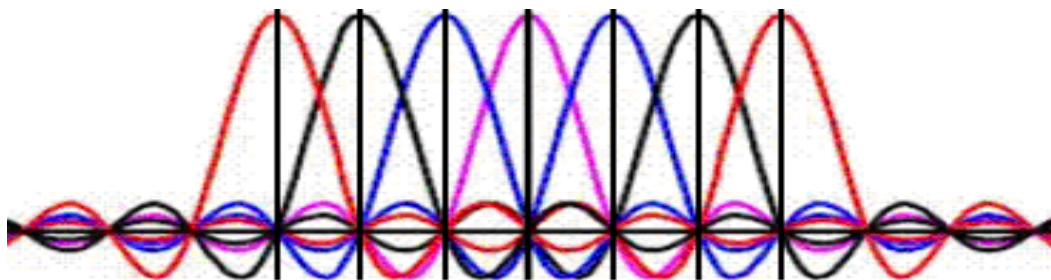
The patentee also explained the purpose of the service type identifier during prosecution, explaining that “[d]ue to the different transmission characteristics associated with the different types of information, it would be desirable to provide an ability for a transmitter to be able to inform a receiver of the type of information in a transmission payload.” Ex. 11, ’568 patent

prosecution history, May 10, 2002 response to office action at pg. 3. Defendants' proposal fails to account for this purpose.

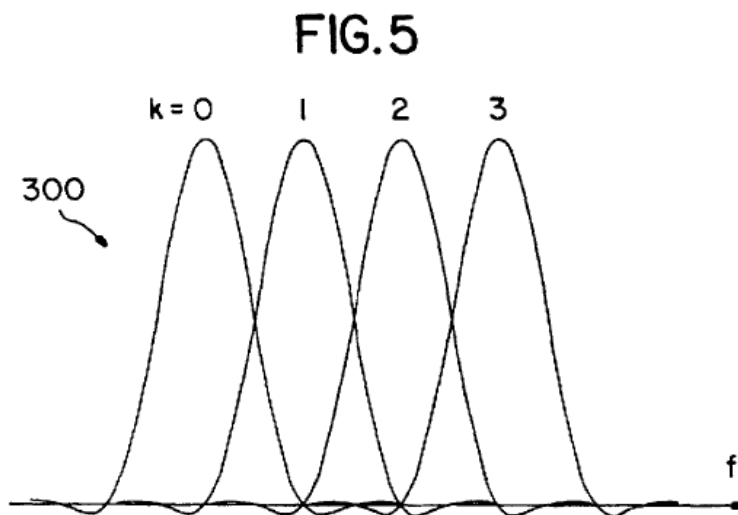
Defendants' proposal is also flawed in that it will create jury confusion. Defendants do not contend that claim 19 requires the service type identifier to identify only "voice," "video," or "data." Their proposal only lists these types as examples. Nonetheless, by including these three examples in their proposal, Defendants may confuse the jury into believing that accused systems that identify different types of payloads will not infringe claim 19.

D. U.S. Patent No. 5,790,516

The '516 patent claims an improvement to orthogonal frequency division multiplexing ("OFDM"). The "FDM" in OFDM refers to a special type of frequency division multiplexing, in which data is transmitted on separate frequencies. The "O" in OFMD refers to a particular way of selecting the frequencies (called "subcarriers" in an OFDM transmission) such that the frequencies are designed not to interfere with each other. The diagram below illustrates a simplified OFDM signal with each subcarrier drawn in a different color. The vertical black lines represent the frequencies where the receiver expects to receive information. The subcarriers below are orthogonal because, at each vertical black line, only a single subcarrier has a non-zero value. Thus, for example, only the red subcarrier transmits information at the first frequency, only the black subcarrier transmits information at the second frequency, only the blue subcarrier transmits information at the third frequency, etc.



One problem with OFDM in the real world is that signals naturally become distorted. One cause of this distortion is a phenomenon known as frequency dispersion or “Doppler spread.” This distortion may cause the subcarriers to shift without maintaining their relative spacing such that they have non-zero power at other subcarrier frequencies where the powers are supposed to be zero. This results in “intersymbol interference” or “ISI.” To mitigate the ISI that results from phenomena like Doppler spread, the ’516 patent proposes the use of a pulseshaping waveform to modify the signal being transmitted. The pulseshaping waveform lowers the power of each subcarrier everywhere except where the receiver expects to receive information from that subcarrier. As shown in figure 5 of the ’516 patent, the portion of a signal outside of its subcarrier band is very close to zero. Thus, even when problems in the wireless channel or modulation time and frequency errors cause the subcarriers to interfere with one another, the effect of that interference is reduced.



The ’516 patent uses the term “spectral decay” to describe the rate at which the power of a signal approaches zero outside of the subcarrier frequency. The pulseshaping waveform increases spectral decay by attenuating the first and last portions of a signal in the time domain, which

results in the attenuation of higher frequencies in the frequency domain. '516 patent at 5:46-5:50.

Another problem with OFDM in the real world is that the transmission of symbols can be delayed in the time domain, resulting in “time dispersion.” If this distortion is significant, symbols on a given subcarrier could interfere with symbols in adjacent time periods. The pulse-shaping waveform of the '516 patent also reduces time dispersion just as it reduces intersymbol interference. Specifically, just as the increased spectral decay mitigated ISI due to Doppler spread, the attenuation of the first and last portions of symbols reduce the effect of ISI in the time domain.

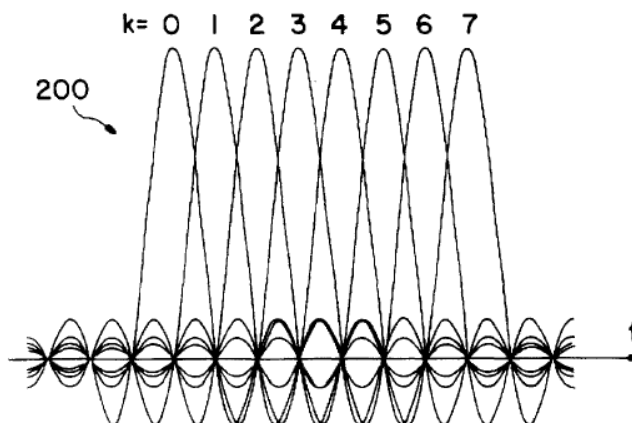
1. “pulseshaping waveform”

Claims	Ericsson's Proposed Construction	Defendants' Proposed Construction
1	a waveform that lessens the effects of both time dispersion and intersymbol interference of an OFDM signal	A waveform that changes the shape of said first data signal

The defining feature of a pulseshaping waveform is that it lessens the effects of time dispersion and intersymbol interference. *See* '516 patent at 3:65-4:4. While the '516 patent gives examples of various pulseshaping waveforms that can be used, all pulseshaping waveforms achieve these effects by increasing spectral decay. *See* '516 patent at 5:43-5:60.

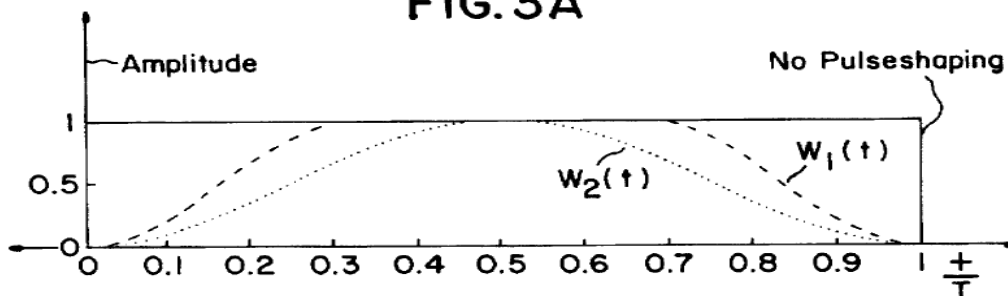
As explained above, the '516 patent pertains to orthogonal frequency division multiplexing (“OFDM”), in which data is encoded on different subcarrier frequencies. *See* '516 patent at 1:23–27; *see also id.* at Fig. 2:

FIG. 2

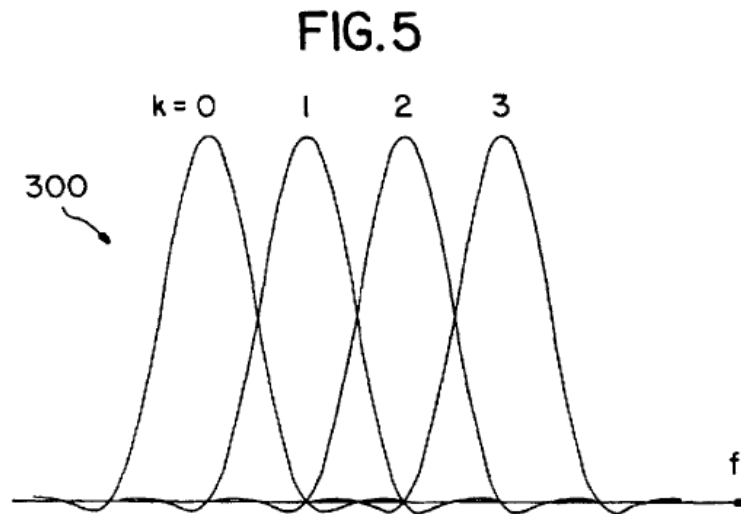


As can be seen from the frequency spectrum of Fig. 2, the subcarrier frequencies comprising an OFDM signal are “orthogonal” in the sense that any given subcarrier frequency has a zero power at the frequencies of the other subcarrier frequencies. *See id.* at 1:28–35; 2:45–50. Because of this orthogonality, the OFDM signal can be transmitted and received without intersymbol interference (“ISI”) in an ideal channel. *See id.* at 3:1–3. The problem is that real-world channels are not ideal and typically introduce time and frequency dispersion, which results in ISI. *See id.* at 3:3–17. To mitigate the effects of time and frequency dispersion, the ’516 patent teaches multiplying an OFDM data signal by a pulseshaping function before the signal is transmitted onto the channel. *See id.* at 4:15–22. The ’516 patent gives examples of various pulseshaping waveforms (such as in Figure 3A) that can be used, all of which will lessen the effects of both time dispersion and intersymbol interference of an OFDM signal.

FIG. 3A



As explained by the '516 patent, the pulseshaping waveform operates to accelerate the spectral decay of the subcarrier waveforms:



Id. at Fig. 5. Because of this accelerated decay, the frequency dispersion in the channel results in less intersymbol interference as compared to conventional OFDM systems. *See id.* at 6:49–56. The '516 patent also teaches how the use of pulseshaping waveforms reduce sensitivity due to time dispersion. *See id.* at 5:46–50. In sum, Ericsson's proposed construction is tailored to define the scope of pulseshaping waveforms taught by the '516 patent; moreover, Ericsson's proposed construction is adapted directly from the specification. *See id.* at 3:65–4:4.

Defendants' proposal is flawed because it would include any waveform that changes the shape of a signal as a "pulseshaping waveform." Setting aside the problem that nearly any waveform (other than purely horizontal signals) would be a "pulseshaping waveform" under this construction, Defendants' construction disregards the teachings in the '516 patent which explain that pulses should be shaped to increase spectral decay. *See* '516 patent at 5:43-5:60. Accordingly, Defendants fail to properly define the scope of a pulseshaping waveform.

2. “performing an N’-point inverse fast Fourier transform (IFFT)”

Claims	Ericsson’s Proposed Construction	Defendants’ Proposed Construction
6	performing an N’-point IFFT such that N’ refers to the number of IFFT points that are required as a result of the pulseshaping waveform used	performing an N’-point IFFT such that N’ refers to an adjusted number of subcarriers depending on the pulseshaping waveform used

The parties are very close in their proposed constructions for this term. There are, however, two problems with the Defendants’ proposed construction. The first problem with Defendants’ proposed construction is that it refers to N’ as “subcarriers.” The claim, however, uses N’ to refer to the “points” of an IFFT—not subcarriers. The second problem with the Defendants’ proposed construction is that it refers to N’ as “*adjusted* . . . depending on the pulseshaping waveform used.” Under this construction, determining whether an IFFT falls within the scope of this method step would require a comparison between the IFFT for a pulseshaping waveform actually used against an IFFT for some other pulseshaping waveform (or none at all)—a comparison not required by the claims. In contrast, Ericsson’s proposed construction is self-contained and acknowledges that N’ refers to the number of IFFT points that are required as a result of the pulseshaping waveform used, as the ’516 patent teaches. *See* ’516 patent at 7:5–10.

E. U.S. Patent No. 5,771,468

The ’468 patent discloses and claims a base station for use with a variety of telecommunications systems, which allows for quick and easy modification for use in systems that may operate according to different standards. Specifically, the ’468 patent discloses a base station with at least one PCMCIA card slot and a line interface connected to at least one of the telecommunications systems, and electrical communication between the two.

1. “an interface for allowing electrical communication between said at least one means for removably mounting said line interface”

Claims	Ericsson’s Proposed Construction	Defendants’ Proposed Construction
1	an interface for allowing electrical communication between the PCMCIA card slot and the line interface	<p>(a) indefinite under 112 ¶ 2 as lacking antecedent basis for “said at least one means for removably mounting said line interface”</p> <p>(b) indefinite under 112 ¶ 2 as nonsensical</p> <p>(c) indefinite under 112 ¶ 2 since “at least one means for removably mounting said line interface” is a 112 ¶ 6 limitation with no disclosed corresponding structure in the specification</p> <p>(d) indefinite under 112 ¶ 1—lacks support in the specification as drafted</p>

Ericsson’s proposed construction as to this claim term seeks to correct an obvious administrative error which is clear from the face of the patent and supported by the specification and prosecution history.

The Federal Circuit has made clear that a court may correct claim language where (1) the error is clear from the face of the patent, (2) the correction is not subject to reasonable debate based on consideration of the claim language and the specification, and (3) the prosecution history does not suggest a different interpretation of the claim. *Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1331 (Fed. Cir. 2005). Here, “said at least one means for removably mounting” lacks antecedent basis as presently claimed. However, the claim discloses a “PCMCIA card slot for removably mounting,” and the specification teaches that “the means for removably mounting comprise PC & Memory Card International Association (PCMCIA) PC card slots.” ’468 patent at 3:12–14. There can thus be no reasonable dispute, based on consideration of the claim language and the specification, that “an interface for allowing electrical communication between

said at least one means for removably mounting . . .” should read “an interface for allowing electrical communication between the PCMCIA card slot”

The prosecution history does not disclose a different interpretation and, in fact, confirms that Ericsson’s interpretation is correct. Indeed, in response to the October 27, 1997 Office Action, the patentee attempted to replace each use of the phrase “means for removably mounting” with “PCMCIA card slot for removably mounting” in response to the examiner’s rejection of claim 1 in light of Fischer et al.’s alleged disclosure of “at least one means for removably mounting.” *See* Ex. 12, January 17, 1996 Office Action Response at pgs. 2–6. However, by mistake, the substitution was not made in the presently disputed claim term. The patentee’s intent that “means for removably mounting” should have been amended to “PCMCIA card slot for removably mounting” could not be more clear.

In addition, an “and” is missing between “means for removably mounting” and “said line interface” such that the use of the word “between” is rendered meaningless without it. The patentee’s intent is elucidated by the specification, which expressly discloses electrical communication between the PCMCIA card slot and the line interface. *See* ’468 patent at 2:65–3:5 (“Each mounting means is connected to a bus structure that allows electrical communication between components mounted in the separate mounting means. The base station also comprises a first interface capable of being connected to telecommunications networks. A second interface connected between the bus structure and the first interface provides a communication path between the system components and the telecommunications network.”).

In sum, because the construction proposed by Ericsson is intended to correct an obvious error and is supported by the claim language, specification, and prosecution history, Defendants’ proposed construction should be rejected.

2. “telecommunications system”

Claims	Ericsson’s Proposed Construction	Defendants’ Proposed Construction
1	<i>No construction is necessary.</i>	wireless communication system that operates according to a single system standard

No construction is necessary for this term. Defendants proposed construction is improper for the reasons listed below.

First, if a claim term “has an ordinary meaning that a jury would understand without construction” then no construction is necessary. *See VirnetX Inc. v. Microsoft Corp.*, Case No. 6:07-CV-80, 2009 U.S. Dist. LEXIS 65667, at *19–20 (E.D. Tex. July 30, 2009) (Davis, J.); *see also Peer Commc’ns Corp. v. Skype Techs. SA*, Case No. 6:06-CV-370, 2008 U.S. Dist. LEXIS 92683, at *9–10 (E.D. Tex. May 29, 2008) (Love, J.) (declining to construe term that the jury can understand). Here, a jury will understand the meaning of “telecommunications system” without need for further explanation.

Second, Defendants’ proposed construction seeks to limit the application of the ’468 patent to “wireless communication system[s].” However, the specification makes clear that “a cordless base station which operates to the principles of the present invention could be connected to the public switched telephone network (PSTN), a PBX, a personal communication system (PCS) or Wide-Area Local Access Network (W-LAN).” ’468 patent at 4:8–12. At the very least, the PSTN and some PBXs are widely recognized as wired communication systems. Defendants’ proposed construction is, thus, expressly contradicted by the specification and must be rejected.

Finally, “[h]ad the inventors intended [the limitations proposed by Defendants], they could have drafted claims to expressly include [them].” *i4i*, 598 F.3d at 843. Further, the Defendants have cited no evidence that the patentee “acted as his own lexicographer and imbued

[these] claim[s] terms with [these] particular meaning[s] or disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction.” *See E-Pass Techs.*, 343 F.3d at 1369. Also, because Ericsson did not narrow the ordinary meaning of these terms to overcome a rejection in prosecution, prosecution history disclaimer does not apply. *See Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003). For these reasons, the Court should reject Defendants’ proposed construction.

3. “system component”

Claims	Ericsson’s Proposed Construction	Defendants’ Proposed Construction
1	<i>No construction is necessary.</i>	a removably mountable component required for the base station to connect a wireless device to another wireless device within the same telecommunications system

No construction is necessary for this term. The Defendants’ proposed construction seeks to import a requirement that a system component be “required . . . to connect a wireless device to another wireless device within the same telecommunications system.” The Defendants, however, have cited no evidence that the patentee “acted as his own lexicographer and imbued the claim terms with [these] particular meaning[s] or disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction” and, therefore, these limitations should not be imposed on the claims. *See E-Pass Techs.*, 343 F.3d at 1369. Moreover, Ericsson did not narrow the meaning of this term in this way to overcome a rejection in prosecution; therefore, prosecution history disclaimer does not attach. *See Omega Eng’g*, 334 F.3d at 1324.

As such, because there is no limiting language in the claims, written description, or prosecution history requiring the Defendants’ proposed limitations, they are extraneous and should be rejected. *See Clearwater Sys. Corp. v. Evapco, Inc.*, 394 Fed. App’x 699, 706 (Fed.

Cir. 2010). Furthermore, the claim language makes no reference to a wireless device; Defendants' attempt to graft in limitations having no basis in the claims is improper. *See MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1330–1331 (Fed. Cir. 2007) (“[W] we cannot endorse a construction analysis that does not identify ‘a textual reference in the actual language of the claim with which to associate a proffered claim construction.’”) (quoting *Johnson Worldwide Assocs., Inc. v. Zebco Corp.*, 175 F.3d 985, 990 (Fed. Cir. 1999)).

Finally, although purporting to define the two words “system component,” Defendants actually define neither and simply reuse those words as part of their own longer, narrower claim revision. “System component” does not need to be construed.

V. CONCLUSION

For the foregoing reasons, Ericsson respectfully requests that the Court adopt its proposed constructions of the disputed claim terms, and refuse Defendants' repeated invitations to impermissibly import extraneous limitations.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned certifies that, on May 8, 2012, the foregoing document was served via the Court's ECF system on all counsel who has filed notices of appearance in this case.

/s/ Theodore Stevenson III
Theodore Stevenson III